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REMARKS/ARGUMENTS

Claims 2, 3, 7-14 and 42-63 are in the case.

Claim 1 has been cancelled in light of the Examiner's comments.

The claims to the non-elected subject matter, claims 4-6 and 15-41, have been cancelled from the application in accordance with the Examiner's request, but Applicant would like to retain the right to present these claims in one or more divisional patent applications.

The Examiner has objected to page 1, line 5, of the specification pages requesting the correction of the status of the parent case, US 09/566728, as now being abandoned. Applicant has revised the specification on page 1, line 5, in accordance with the Examiner's request.

In light of Examiner's comments, Applicant has also revised the statements of invention on pages 6 to 24 of the specification pages to conform with the claims as currently amended and also to improve the form and clarity of the specification.

Claim 3 has been rejected by the Examiner under 35 U.S.C. 112 as being indefinite for lack of antecedence for the term "protein concentrates". Applicant has, among other revisions, amended claim 3 to correct the antecedence in conformance with 35 U.S.C. 112 and Applicant requests the Examiner's rejection of claim 3 be withdrawn in light of the above amendment.

The Examiner has rejected Claim 1 of the present invention under 35 U.S.C. 102(b) as being anticipated by EP 1074605. As mentioned herein above, Applicant has cancelled claim 1 in light of the Examiner's comments and the rejection is believed to be moot.

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The remaining independent claims provided for in the present invention, namely claims 2, 3 and 54, are directed to a novel process for producing nutritionally upgraded oilseed meals for animal diets involving the steps of:

- a) providing an oilseed;
- b) drying the oilseed;
- c) blending unhydrolyzed animal offal with the oilseed; and,
- c) cooking the mixture to produce a protein rich fraction, a stickwater fraction and a feed grade oil fraction.

Optionally, the oilseeds can be rapidly heat treated to produce oilseed particulates reduced in antinutritional components and/or cold pressed to substantially reduce the particle size of the oilseed to yield feed grade oil. Another option involves the adding of an antioxidant to the blend. Yet another option involves the dehulling of the oilseeds before or after the heat treatment.

In the Examiner's letter, the Examiner has cited EP 1074605 or Sakai et al. (US 4,946,598 and US 6,517,885) in view of Sewlal, et al. EP 0925723, Kozlowska et al. (US 4,148,789) and Bedford (US 2,851,357) having regard to the rejection of claims 2, 3 and 7-14 under 35 USC 103(a). As discussed above, each of the independent claims relate to a process for the preparation of oilseed products in which the oilseed is blended with animal offal; the process involves the steps of cooking the mixture of oilseed and animal offal under conditions which improve digestibility, and free cellular water and lipid in the offal. The preparation of products containing animal offal and oilseed in which the oilseed has been treated to remove antinutritional components permits end protein and lipid products which have upgraded nutritional values that find use in feed for fish or animals.

EP '605 does not disclose the preparation of mixtures of treated oilseed in combination with animal offal. The only treatment of the rapeseed disclosed in the reference relates to the exposure of the seed to temperatures below 40°C, for the

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purpose of reducing the water content of the seed, and drying it. At these low treatment temperatures, the rapeseed could not be subjected to any temperature which would reduce the anti-nutritional components in the seed. This reference further does not disclose any subsequent use of the rapeseed in combination with animal offal, and thus a does not disclose one of the novel claimed features of the present invention.

The US '598 reference discloses the preparation of mustard flour (column 1, line 41) by a technique which minimizes the pungency of the mustard using a pressurized process (column 2, line 3 et seq) under heating conditions. The primary purpose of the pressurized heating method is to suppress the decomposition of sinigerin (column 2, line 21). There is no disclosure of any process combining the mustard flour with animal offal in order to obtain nutritionally upgraded oilseed meals, protein concentrates or animal feed grade lipids, by co-processing of mustard seed with animal offal, a critical feature of the present invention.

Further, the US '885 reference discloses the preparation of mustard cake and mustard powder from mustard seed; the process is specific to the drying of the mustard seed to a defined moisture content followed by removal of crude oil from the dehulled seed under a low temperature (45-55°C) by pressing (column 1, lines 52 et seq). The use of low temperatures is crucial, in order to avoid destruction of enzymes. This is contrary to applicant's process, which involves removal of antinutritional components by elevated or rapid heat treatment. This reference is totally silent on the further processing of the mustard product and, in particular, to the combination with animal offal followed by a cooking step, etc. which the present invention relates to in order to produce different fractions for nutritionally upgraded oilseed meals and protein.

Turning now to the EP '723 reference, this document teaches the treatment of a vegetable protein source (any plant or plant part such as soybeans, leguminous

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plants, or beans, peas, etc. - paragraph 22) with a first or preliminary heat treatment to obtain a product which is still a vegetable protein product with a given dispersability index (paragraph 23). Thereafter, the vegetable protein product is water washed at temperatures up to 50°C (paragraph 25) one or several times; phytase can be added (paragraph 27).

A second or further heat treatment step is required to provide a thermal drying of the product to obtain a denatured composition (paragraphs 33); the product obtained after drying may be utilized as a component of a foodstuff or feedstuff "...without the need for such further processing..." (paragraph 38).

The vegetable protein in the product obtained is used as a feedstuff and may be applied to "... the nutrition of livestock (including ...animals..fish...or in a food for humans..." (paragraph 43).

There is no teaching in this reference concerning the co-processing of a treated oilseed with animal offal as well as the specific features defined in the current independent claims such as cooking the cold processed mixture, followed by separation of the co-processed cooked mixture into different fractions. Thus, the process of the present invention and the process of the prior art teach different products and the prior art does not remotely suggest the inclusion of animal offal.

The US '789 reference discloses that rape seeds are treated to obtain a protein concentrate; the process involves water extraction , removal of the "seed-leaves" under wet conditions and after obtaining cleaned seed-leaves, deoiling and disintegration by conventional techniques are employed. At best, this reference teaches treatment of oilseeds but does not teach anything further relative to the claims on file - i.e. there is no process involving the combination of the treatment of oilseeds and blending animal offal with the oilseed followed by a cooking step and a separation step to obtain products which are derived from the combination of offal

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and heat treated seeds. In the absence of any such teachings it is respectfully submitted that the claims on file are directed to a novel invention over and above this art.

US '357 discloses a fish feed emulsion and a process for maintaining the emulsion in a stable form during transport (column 2, line 1, et seq.). The reference teaches calcium hydroxide or other calcium compound added to a mixture of emulsified fish stickwater (or concentrated fish hydrolysates) and fatty materials which are taken from either a vegetable or a fish source. Molasses is then added to further stabilize the mixture. The fat sources are acquired from "...vegetable seeds or fruit coats, fish muscle, offal and viscera, and animal sources." (Column 2, lines 46 et seq.) US '357 does not disclose co-processing of animal offal per se with an oilseed but rather specifically states that if two or more fats are used (namely offal fat and oilseed fat) they are first blended together and not added separately during the process (column 3, lines 1-5). Further, the fish emulsion, consisting of fish viscera with added fat, does not include an oilseed which is subjected to a rapid heat treatment for producing particulate seed and then mixing the particulate seed with the offal before cooking as in the present invention.

Applicant submits that it is clearly shown from the above discussion that a modification to one of these references or even to all of the above references combined could not result in one of ordinary skill being brought to the present invention. In view of the above, the Applicant respectfully requests the Examiner to withdraw the rejection under 35 USC 103(a).

The Applicant has taken this opportunity to include new claims 42 to 63 which are directed to additional aspects of the present invention not previously brought out in the disclosure.

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More specifically, claim 42 is a new dependent claim directed to the further steps of subjecting the oilseed to a heat treatment to destroy or reduce anitnutritional factors in the oilseed (found supported on page 26, lines 8 to 13), providing animal offal (found supported on page 10, lines 24 to 26), cooking the mixture at a temperature of about 85-90°C to improve protein digestibility (see page 11, lines 14 et seq.), and removing the fluid from the mixture to obtain a pressed cake and drying the cake at a temperature for the pressed cake to reach a moisture content of about 7-10% to provide a protein concentrate (found supported on page 8, lines 24 and 25). All of the above features are also found illustrated in Figures 1 and 2.

Claim 43 is a new dependent claim directed to condensing the stickwater. This feature is found supported on page 27, lines 23-25, of the disclosure and is shown in Figures 1 and 2.

New claims 44 and 45 are also dependent claims and are directed to the heat treatment being carried out at 100-115°C for about 1.5 to 30 minutes and dehulling the oilseed after the heat treatment, respectively. These features are found supported on page 26, lines 2-7, of the disclosure and are illustrated in Figure 2.

Dependent claim 46 is a new claim directed to the feature of carrying out the dehulling step by impact or disc processes coupled with a gravity screening and/or air-classification process. Support for this feature can be found on page 26, lines 14-17.

Claim 47 and 48 are new and provide for the feature of the oilseed being a member selected from canola, rape seed, soybeans, sunflower seed, flax seed, mustard seed, cotton seed, hemp and mixtures thereof. These features are found supported throughout the disclosure but more specifically on page 4, lines 24-27, and page 27, lines 26-28, of the specification.

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New claim 49 is a dependent claim which provides for the animal offal being a fish offal, a feature also found supported throughout the disclosure and examples in the specification and more specifically on page 29, lines 5-13.

Claim 50 is a dependent claim directed to the addition of a palatability enhancer to the mixture before the cooking step. This feature is found supported on page 11, lines 14-16 and also on page 13, lines 4-8, of the specification.

Dependent claim 51 covers the feature of adding an antioxidant to the mixture prior to the cooking step or after the pressing step. Support for this feature is found on page 11, lines 14-16, of the disclosure.

New claim 52 is also a dependent claim and is directed to the palatability enhancer being from the group consisting of products based on krill, euphausiids, squid and mixtures thereof. This feature is found supported on page 11, lines 23-25.

The new dependent claim 53 provides for the antioxidant being a member selected from the group consisting of ethoxyquin, butylated hydroxyanisole, butylated hydroxytoluene, Vitamin E and mixtures thereof. Page 11, lines 16-18, and page 13, lines 1-3, of the specification pages clearly support this feature.

New claim 54 is a new independent claim which provides for a process for the preparation of nutritionally upgraded oilseed meals that are protein and lipid-rich and have a reduced fibre content. The steps include providing a source of oilseed, subjecting the oilseed to a drying step to obtain oilseed having a moisture content of less than 10% to improve dehulling; dehulling the oilseed (see page 8, lines 24 and 25, and also page 26, lines 14-18, for support); providing unhydrolyzed animal offal (found supported on page 10, lines 24 to 26); blending the dehulled oilseed with the animal offal together with an antioxidant if required (please see page 27, lines 1 et

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seq, for the support for this feature and all of the following features), cooking the mixture to improve protein digestibility and free cellular water and lipids present in the animal offal and facilitate separation of protein from the lipid in the animal offal and the oilseeds; and separating the cooked mixture into a stickwater fraction, a moisture containing protein-rich fraction, and an animal feed grade oil fraction. All of the above features are found illustrated in Figures 1 and 2.


Claims 55 to 57 are new dependent claims and provide for the dephytinize the oilseeds. This feature is found supported on page 9, lines 14-18, of the specification pages.

The last dependent claims, claims 58 to 63, are directed to the feature of extraction step by use of a solvent, preferably hexane. The specification clearly supports this feature on page 13, lines 16-17, on page 26, lines 22-24, and also on page 27 and lines 18-22.

No new matter has been added by way of this amendment. Applicant now believes the claims to be in good order for allowance and early action to this end would be greatly appreciated.

Respectfully submitted,
HER MAJESTY THE QUEEN IN RIGHT OF CANADA,
as represented by the MINISTER OF FISHERIES AND OCEANS

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